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A VISIT TO THE ARCTIC OF EASTERN CANADA

BY JOHN OUGHTON

Each year the Hudson's Bay Company sends ships to the eastern Arctic to carry in supplies and relief men and to bring out furs and men on furlough. This past year, all pieces of the cargo bore the number 270, indicating that ships of the old Company have been sailing into Arctic waters for almost two and three-quarters centuries. The chief ship being used as present, the *R. M. S. Nascope*, is of course especially adapted for northern navigation. To this end, it has a reinforced bottom and prow and such modern navigation gadgets as the gyroscopic compass. In recent years, part of the ship has been leased by the Canadian Government in the interests of the Royal Canadian Mounted Police and the Eastern Arctic Patrol. The latter, under the direction of Major D. L. McKeand, comprises medical men and naturalists.

I left Montreal on July 8, 1939, in the midst of a heat wave. I saw my first iceberg in the Straits of Belle Isle and I, with other greenhorns, wasted photographic film on it. Soon ice was to become an ubiquitous and even tedious part of the environment. But the first berg, small and miserable as it was, had a glory of its own. After turning up the Labrador coast, but keeping well out, a fog set in and held us up for three or four days. During this lull, we saw some harp seals seated on a small pan of ice, floating southwards.

Early on the 17th, we made our first port at Hebron in northern Labrador, where we were met by a boat from the Moravian Mission, which has been established on this coast for more than a century. Their band, which proudly serenaded us, is remembered for two things:

1. The parson's claim that this is the only Eskimo brass band in the world.

2. The unusually high incidence of sour notes. No doubt the cold congeals the juices so essential to the horns.

With my head full of thoughts of *Vitrina* and *Stagnicola vahlii*, I rushed ashore. I found none of the these but after much searching did turn up a few pupillids and slugs. In desperation, I turned to a new love—sea shells. A merry Eskimo family joined forces with me and we obtained a good number of *Littorina saxatilis*, *Macoma balthica*, a few *Crenella (faba?)*, *Mytilus edulis*, a smooth *Astarte*, *Mya truncata*, *Saxicava arctica* and *Margarites helicina*. We filled up a couple of bottles with small fish and gammarids lurking among the *Fucus*. The party was concluded to mutual satisfaction with cigarettes all around.

On the 19th, we dropped in at Port Burwell, formerly well-known to whaling and sealing boats as Cape Chidley. During the brief visit ashore, I could find no land or freshwater shells. Instead, I occupied myself with spiders, amphipods and more *Littorina*. On weighing anchor, a pretty little bivalve, *Serripes grönländica*, was brought up from 15 fathoms.

We crossed Hudson Strait to Baffin Island, enduring more fog, more ice and more farewell parties. Max Dunbar, planktologist, and I left the ship at Lake Harbour, while she spent three weeks visiting the points on Hudson Straits and Hudson Bay. We were very fortunate in being able to occupy the residence of the Anglican missionary, who had gone out on furlough. Around our house, the Iceland poppy and fireweed made a pretty splash of color. The house overlooked the head of the fiord, which during our first week was choked with ice. The tidal drop of thirty odd feet would strand pans and bergs, which looked very awkward tilted on the shore. Around us, the rugged-bare rocky hills rose and fell in never-ending series.

Sometimes I rambled back over the hills, collecting the abundant spiders, perhaps throwing in the odd beetle or *Collembola* just in case. The land snails, comprising three or four species of pupillids and one species of slug were confined to wet edges of streams and ponds or boggy flats. The ponds and streams themselves were rather barren; some appeared to support no

macroscopic life, while others contained a few sticklebacks, beetles, eaddis larvae, and amphipods or fairy shrimps, but no molluses. Marine dredging, especially at the mouth of the fiord some eight or ten miles distant, was more remunerative. In the depths explored, *i.e.*, down to 35 fathoms, brittle stars, amphipoda, prawns and sedentary worms predominated. The molluscan fauna, while perhaps smaller in numbers, was varied. The most abundant types among the bivalves were: *Nuculana* sp. near *minuta* Müll., *Modioluria laevigata* Gray, *Cardium ciliatum*, *Macoma calcarea*?, *Mya truncata*, *Saxicava arctica* including several of the curious spiny juveniles. The common snails were *Lepeta caeca*, *Puncturella* probably *princeps*, *Margarites* was not only abundant in individuals but well represented in species with *M. umbilicalis*, *M. helicina*, *M. cinerea*, a small unidentified species and one I take to be *M. grosvenori*, described by Dr. Dall in 1926 from Etah, Greenland. A single species of Pyramidellidae, nameless to me, was abundant. Among those also present were *Velutina laevigata* and *V. lanigera*; Rissoidae, three or four species; *Trichotropis*, a few shells of apparently both boreal species; *Trophon* spp., a small number of these delicately sculptured shells. Of whelks, I obtained only four adults, but juveniles of two or three species were more numerous. *Colus* sp., a single individual $4\frac{1}{2}$ " long, was the largest mollusc captured. There were two or three species at least of *Lora* and its relatives, and a few fragile *Cylichna*.

Arctic dredging was never boring, I found. Iola, the laughing Eskimo who acted as engineer, guide and friend on our forays, always put his harpoon and gun aboard. If we, *i.e.*, he, saw a seal, we gave chase, leaving the bottom organisms to their own devices. Our meals were good hearty ones of ship's biscuit, tea and sardines, taken on the job. Iola always concluded matters by drinking the last drainings of sardine oil. I might mention the item of dredging weights. On the advice of Bill Clench, I provided myself with handsome iron weights at 7c per pound. Early in the work, these elegant pieces disappeared into the Arctic seas. Thereupon, I was forced to eadge bits of bolts, chains, hooks and axles from the 3rd engineer or to beachcomb. My most useful find in this field was a stove grating.

On the shores of the fiord at low tide, large numbers of *Littorina saxatilis* could be obtained in company with a small barnacle. In more restricted stations, *Crenella*, *Mya truncata*, *Margarites umbilicalis* and *M. helicina* could also be found at low tide. One day was spent dredging in Soper Lake, which has an inflowing stream of freshwater at one end and a narrow connection with the sea at the other. The surface was quite fresh to the taste, or more accurately, its content was 0.23 Cl. p.p.m., while the bottom water at 9 fathoms was distinctly salty, viz., 10.7 Cl. p.p.m. Large areas of the bottom were covered with a foul black mud devoid of macroscopic life. The bottom fauna in the remaining areas was typically marine: brittle stars, prawns and tubeworms being abundant. Of the molluscs, the smooth *Astarte* mentioned above, a *Macoma* and *Saxicava arctica* were especially conspicuous.

At 4 A.M. on the 15th of August, an excited native rushed into our house to say that the big boat was coming. Again aboard the *Nascope*, we left Baffin Island, and visited Port Burwell briefly. The tide was quite low, so that I was able to get several specimens of *Margarites helicina*, *Crenella* and *Modiolaria laevigata*, all of which I had missed before.

Our next hop was a long one, taking us the whole length of Baffin Island and past Devon Island to Craig Harbour, on the southern tip of Ellesmere Island. This we finally reached on the 23rd, after much ice and fog and snow. During the hour or two ashore, snow fell much of the time and prevented serious collecting. The dead beach shells were *Buccinum*, *Astarte*, *Saxicava arctica* and *Mya truncata*. The two pteropods, *Limacina helicina* and *Clione limacina* were abundant near the anchored ship, the former being much more numerous. After more fog and more ice, we reached on the 30th Fort Ross, situated on the northern tip of Boothia Peninsula, i.e., approximately 100 miles north of the magnetic pole. Heavy snow ashore made collecting unfruitful; I obtained only a few worn valves, chiefly of the old perennials, *Saxicava*, *Mya* and *Astarte*. Historically, this locality of low hills is of interest as it stands at the eastern entrance of Bellot Strait—the Northwest Passage. Leaving here, we retraced back and around to Arctic Bay in northwest Baffin Island.

On the beach of Arctic Bay there were good windrows of shells containing *Mya*, *Astarte*, *Saxicava* and *Modiolaria*—not an attractive feast perhaps to ye collector satiated by Floridan beaches. Next to Pond Inlet, on the northeastern corner of Baffin Island, which we reached on a fine sunny day. The snow and glacier on the hills of Bylot Island sparkled brightly. A good beach of drift shells provided me with a couple of whelks, *Mytilus edulis* and *Aemaca testudinalis* in addition to the old favorites. There was a great number of pteropods, chiefly *Limacina helicina*, but also a small proportion of *Clione limacina*. They were confined to a band one hundred to two hundred yards wide near the shore. Two residents informed me that only at this time, *i.e.*, early September, did they see the pteropods which then come close to shore. For the rest of the year, these pelagic molluscs are elsewhere, presumably in deeper water. By the way, the Eskimo term for *Limacina helicina* is tu-lu-gah-juk, which means "something that looks like a raven"—an appropriate name, as the little creature is quite dark in the water and flaps its wings in a ponderous crow-like fashion.

Continuing down the eastern coast of Baffin, we stopped for a few hours at Clyde River and then on to Pangnirtung, which is situated just a few miles south of the Arctic Circle on Cumberland Sound. The high, snow-lad hills, combined with the bright sunshine and cool air, made the three day stop a pleasant one. *Macoma* was very abundant here on muddy tidal flats and *Littorina*, of course, was found on the rocks, while a few specimens of *Mya truncata*, *Crenella*, *Saxicava*, *Aemaca testudinalis* and *Margarites helicina* were also found at shore. The dredge brought up from depths of 10 to 25 fathoms specimens of two Peetens, namely *P. islandicus* and *P. grönlandicus*. The former is bright orange-red, particularly in the young stage, while the latter is vitreous. The other species dredged were much the same as those obtained at Lake Harbour, *Nucula*, *Nuculana* 2 spp., *Lora* spp. and young whelks, bulking largest. But *Dacrydium vitreum*, a minute, shining member of the *Mytilidae*, was another new record to me.

We continued our southward course, calling at Hebron enroute to unload the barges and surplus goods, and then southward again

and homeward. In two or three days we saw the twinkling lights of some village shore, and on September 23rd we docked at Halifax.

The best remembered aspects of the trip were the things less tangible than molluses, although these are good in their place. The bare sweep and the quietness of the hills; the cheerfulness of that sturdy, enterprising people, the Eskimo, as they helped us in our work or gathered around our stove in the evening for warmth and companionship, coffee and cigarettes; and last, and perhaps best of all, the way Jimmy Bell, man of the Hudson's Bay Company, and our other neighbors at Lake Harbour, adopted us into their midst, aided us in our endeavors and entertained us in the hearty hospitality of the north.

CIVILIZATION AND AQUATIC MOLLUSKS

BY CALVIN GOODRICH

Studies of Dr. Victor Sterki (1911) and Dr. Allan Archer (1937) upon the adaptiveness of American molluscs to agricultural, industrial and urban environments were devoted almost wholly to the adjustments made by terrestrial forms, and in fact particulars in regard to aquatic species were entered into only in the case of the introduced *Bythinia tentaculata*. It is proposed here to deal with adaptations among fresh-water mollusks either observed personally or chanced upon in random reading. Since both Sterki and Archer have used the word "civilization" in the titles of their papers I am venturing to echo them, for all that currently doubt is entertained about the existence of that state of affairs.

Lymnaca. The favored habitat of *L. humilis modicella* and *obrussa* in the middle west is mud flats of pasture brooks and ponds. The snails are not adversely affected by the accumulation of silt in their gills and by high summer temperatures. Judging by their numbers they have prospered better than has *L. caperata* which I recall as once associated with them in ditches and now is seldom met with. *L. columella* has been found in southern waters locally described as "hog creeks," appearing there to be the only mollusks. An extremely turbidity and per-